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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,092	07/18/2003	Joseph W. Roos	EI-7592	2887

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EXAMINER
MARCANTONI, PAUL D

ART UNIT	PAPER NUMBER
1755	

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/623,092	ROOS ET AL.	
	Examiner	Art Unit	
	Paul Marcantoni	1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/28/06 RCE and response*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5,7-10 and 12-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-5, 7-10, and 12-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Applicant's RCE and arguments filed 8/28/06 have been fully considered but they are not persuasive.

New Matter:

Claims 1, 3-5, 7-10, and 12-20 are rejected under the first paragraph of 35 USC 112 and 35 USC 132 as the specification as originally filed does not provide support for the invention as is now claimed.

The terms "at least 20 ppm wt% of the coal" in reference to the manganese compound amounts is new matter. There is only support for –about—20 ppm by wt. manganese to the coal. See lines 3-4 of page 7 of applicants' specification. There is also no claimed upper limit which is required by applicants' specification. The applicants' upper range for amount of added manganese compound is –about 500 ppm by weight of coal--- (page 7, lines 1-2 of applicants' specification). Applicants do not have an unlimited upper limit for amount of manganese added and must provide about 500 ppm as an upper limit as well.

Obviousness Type Double Patenting:

Claims 1, 3-5, 7-10, and 12-20 remain provisionally rejected under the judicially created doctrine of obviousness type double patenting as being unpatentable over claims 1-21 of copending application no. 10/623,686 (US Pat Pub 2005/0016057-Factor et al.). This is a provisional obviousness type double patenting rejection. Applicants have not addressed the ODP rejection again. It is respectfully requested that applicants address this specific rejection because if not addressed in the next response, that

response can be held to be non-responsive. Please address therefore this ODP rejection in the next response.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A *timely filed terminal disclaimer* in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Applicants still have not submitted a terminal disclaimer and thus the ODP rejection above remains as stated above. Factor et al. also teach an amount of manganese compound of about 5 to 100 ppm of the coal (claim 8, p.3) which overlaps applicants' claims requiring at least 20 ppm wt% of coal.

35 USC 102/103:

Claims 16-18 remain rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kukin (US Patent No. 3,837,820).

Kukin '820 teaches a coal/combustion additive (see col.1, lines 40-45) that is a manganese containing substance that explicitly teaches reducing the amount of carbon in the fly ash because manganese is known to be a carbon destroying catalyst (see col.4, lines 5-9) thus anticipating applicants' claimed invention. Further, even if not anticipated, overlapping ranges of amounts of the same components in the claimed coal additives would have been prima facie obvious to one of ordinary skill in the art.

Kukin further teaches adding an amount of 40 ppm manganese to the fuel (see examples 8-10. Though the fuel used was fuel oil in the examples, Kukin also teaches that the fuel may also be coal (see col.2, lines 55-65) and thus this amount applies to any fuel whether fuel oil or coal. This amount overlaps applicants' range of at least 20 ppm wt% of the coal.

Also, Kukin does not teach an organo-metallic manganese compound yet an organometallic manganese compound is a species that still falls in the genus of "manganese containing substance that reduces the carbon in fly ash". One of ordinary skill in the art would have understood to use any organic or inorganic manganese containing compound for reducing carbon in fly ash.

35 USC 103:

Claims 1, 3-5, 7-10, and 12-20 are rejected under 35 USC 103(a)as obvious over Kerley '992, Kukin '503, or Rolfe '916 alone or in view of Kukin '820, Oates '052, Wu '216, Hurt '089, Itoh et al. '561, and Zacarias et al. '585 B2

Kerley '992 teaches that his manganese containing substance (ie cyclomatic metal compound) is used to remove carbon from the combustion products. One of ordinary skill in the art would have understood that fly ash is a combustion product (see col.3, last three lines and col.4 lines 1-8). Kerley teaches he wants to insure the complete absence of carbon in his combustion product (ie fly ash) and thus he does so by using the manganese compounds to carry through this function. Kerley '992 also teaches an amount of manganese compound added of

Even if that is not enough, Kukin '820 teaches that manganese containing substances such as those within Kerley's teaching would have been understood by one of ordinary skill in the art and known by that person to reduce the amount of carbon in the fly ash because manganese is known to be a carbon destroying catalyst (col.4, lines 5-9).

Kukin '503 teaches a coal additive (col.1 lines 43-45) that is an activated manganese that can be used to improve the fuel's (e.g. coal) burning properties to prevent buildup of carbon deposits. Hence, Kukin '503 teaches a desire to reduce the amount of carbon. Kukin '503 also teaches his activated manganese additive as a "smoke reducing and soot destroying catalyst". Note soot is unburned carbon and Kukin teaches the reduction of carbon particles including those on the combustion products such as fly ash in a coal burning process.

Again, even if that is not enough, Kukin '820 teaches that manganese containing substances such as those within Kukin '503' teaching would have been understood by one of ordinary skill in the art and known by that person to reduce the amount of carbon

in the fly ash and other combustion products because manganese is known to be a carbon destroying catalyst (col.4, lines 5-9). Kukin '503 also teach an amount of 60-120 ppm of manganese and as little as 10-20 ppm of manganese in the fuel oil (see col.3, lines 12-16) The use of a specific type of fuel is not limited to fuel oil and can also be applied to coal (see col.1, lines 35-44, especially, line 44).

Rolfe '916 teaches it is known to add manganese complex additive to reduce carbon particles (see, for example, col.2, lines 67-70). Again, even if that is not enough, Kukin '820 teaches that manganese containing substances such as those within Rolfe '916 teaching would have been understood by one of ordinary skill in the art and known by that person to reduce the amount of carbon in the fly ash and other combustion products because manganese is known to be a carbon destroying catalyst (col.4, lines 5-9). Kukin further teaches adding an amount of 40 ppm manganese to the fuel (see ecamples 8-10. Though the fuel used was fuel oil in the examples, Kukin also teaches that the fuel may also be coal (see col.2, lines 55-65) and thus this amount applies to any fuel whether fuel oil or coal.

Response to 8/28/06 RCE and Response:

35 USC 102/103 over Kukin (US Patent No. 3,837,820)

The applicants argue that Kukin '820 does not anticipate claims 16-18 because it does not teach organometallic compounds. In rebuttal, Kukin does not rule out any organic or inorganic compounds but teaches broadly manganese containing

substances. Organometallic manganese compounds still fall under the genus of ~~magnanese~~ manganese containing substances. In rebuttal, Kukin requires that it actually be *a manganese containing substance*. The applicants manganese compound though organometallic are still a manganese containing substance and would appear anticipated by Kukin '820. Even if not anticipated, Kukin '820 requires only a manganese containing substance (ie "any") to reduce carbon and would at least render applicants' invention obvious to one of ordinary skill in the art.

The applicants also argue that the basis for the examiner's rejection (ie "any manganese containing substance can be used to reduce carbon in fly ash-col.4, lines 5-9) is contradicted by by the Kukin reference. The examiner disagrees and notes that there is no teaching in Kukin that only inorganic compounds must be used. Kukin only requires a manganese containing substance. An organo-metallic compound is a manganese containing substance.

The applicants argue the Kukin '503 reference with respect to this reference. No comment will be made on this reference with respect to this rejection because it is not used in this particular rejection. The examiner will address this with respect to the combination rejection of references under 35 USC 103. The reference provides no explicit statement negating the use of inorganic or organic manganese containing substances to reduce carbon in fly ash. It is further noted that it would not appear that the carrier material (ie organic or inorganic material part of the manganese compound) is taking any part in carbon reduction but only the manganese. Kukin '820 explicitly teaches that manganese (the metal itself, not any particular compound with

manganese) is known to be a carbon destroying catalyst (col.4, lines 8-9). Kukin does not distinguish any type of compound whether inorganic or organic but notes that the specific presence of manganese alone is what destroys carbon or reduces its content.

The applicants also present a treat rate of at least 20 ppm wt% of coal which is new matter because their specification states "about" 20 ppm. Also, applicants do not have support for any amount for an upper limit of about 500 ppm by weight (see top of page 7 of applicants' specification). Nevertheless, Kukin teaches adding an amount of 40 ppm manganese to the fuel (see examples 8-10. Though the fuel used was fuel oil in the examples, Kukin also teaches that the fuel may also be coal (see col.2, lines 55-65) and thus this amount applies to any fuel whether fuel oil or coal. This amount overlaps applicants' range of at least 20 ppm wt% of the coal. Thus, contrary to applicants' comments on page 8 of their response, there is a disclosure or teaching of amounts of added manganese additive.

35 USC 103 (Kerley '992, Kukin '503, or Rolfe '916 alone or in view of Kukin '820):

Kerley '992:

Applicants acknowledge that Kerley teaches the use of an organometallic manganese compound in coal combustion. Applicants allege that Kerley does not teach reduction of carbon in ash (ie "fly ash). The examiner disagrees. Applicants are referred to the last four lines of Kerley in column 3:

In some cases it may be desirable to use a lesser amount of the cyclomatic metal compound than required to insure complete absence of carbon in the *combustion products.*

The applicants appear to hold the position that only soot and smoke are combustion products within the teaching of this reference. That contradicts the teaching of Kerley since he teaches in column 3 the complete absence of carbon in the combustion products. *Fly ash itself is a combustion product from coal burning* so certainly fly ash is inclusive of materials that have a reduction in carbon amounts. Applicants cannot deny that fly ash is a combustion product and would contain some manganese additive after treatment of the coal either prior to or simultaneously when added in the combustion process and adding the organometallic manganese additive would reduce carbon on any present combustion products/particles remaining from coal combustion (including fly ash particles, smoke particulate, soot particles, etc.)

The examiner also notes his rejection is Kerley alone or in view of Kukin '820. It is the examiner's position that Kerley can stand alone as well. Neverthless, applicants argue that Kerley do not teach mononuclear metal compounds or clusters of about 2 to about 50 manganese atoms. In rebuttal, the organometallic manganese compounds of Kerley appear to meet this limitation (see col.3 for a listing of all organometallic manganese compounds). More so, Kerley even teaches some of the specific organometallic manganese compounds such as cyclopentadienylmanganese tricarbonyl (col.3, line 25) and since they are the same organometallic manganese compounds it should follow they also have mononuclear metal compounds or clusters of about 2 to about 50 manganese atoms.

Kerley can also be combined with Kukin '820 because both teach reducing carbon content in a combustion product using a manganese additive. Fly ash is a combustion product of coal combustion (See again col.3, last paragraph of Kerley and Kukin's col.4, lines 5-9). Combination of references is thus proper.

The applicants also appear to argue that Kerley is limited to a treat rate of 5.8 ppm of manganese and the invention is now claimed at a treat rate of 20 ppm. The examiner could not locate the specific amount of 5.8 ppm as applicants did not provide the column or line number they derive this number from Kerley. It is assumed applicants derived this from the range of amounts of 0.005 % to 5% by wt. of the organometallic manganese compound (cyclopentadienyl compound-see col.4, first paragraph). Yet, in that same paragraph, Kerley also teaches "amounts in excess of 5 % of the weight of the coal may be used and such high concentrations, however, may add un-necessarily to the expense. Thus, it is the examiner's position that Kerley's teaching of an excess of 5% added organometallic manganese compound to coal is inclusive of the range of at least 20 ppm claimed by applicants. The applicants note that the treat rate for Kerley is 5.8 ppm. The applicants are also referred to their own specification wherein their own treat rate can be as low as about 1 ppm to about 500 ppm by wt of coal. The applicants can thus obtain a reduction in carbon using an amount even lower than 5.8 ppm since they too teach a treat rate of as low as 1 ppm which is the goal of applicants preamble and process; to lower the amount of carbon in fly ash from coal combustion. It also makes sense to use less manganese additive as Kerley teaches because adding more

organometallic manganese additive than needed adds to process costs which in any manufacturing or processing facility should be minimized to the fullest extent possible.

Kukin '503 and Kukin '820:

The applicants argue particle size with respect to Kukin '503 yet no particle size is present in applicants own claims. Applicants cannot argue features they too do not have in their own claims including particle size. While it is true that the claims may be read in light of the specification, it is improper to read the limitations of the specification into the claims. In re Yamato, 222 USPQ 93; In re Wilson, 149 USPQ 523; Graver Tank v. Linde Air Products Co. 80 USPQ 451 (Supreme Court). It is also not clear if applicants' own specification has any limitations for their organometallic manganese additive with respect to particle size.

Nevertheless, applicants are referred to column 6, line 70 wherein Kukin '503 teaches that an organometallic manganese additive such as manganese cyclopentandienyl tricarbonyl (same as that claimed by applicants for their own organometallic manganese additive in claim 5-see also col.6, line 70 of Kukin '503) can be used and has been used in the past to treat fuel (ie fuel oil, coal, etc). Kukin makes it clear that these organometallic manganese additives can also be used but it is preferred not to based solely on the fact that these compounds are relatively expensive (see col.6, lines 64-75). Cost is the overriding factor in preference to using other manganese additives other than these which cost less in the processing to reduce carbon content after fuel combustion.

Again, the examiner holds that the combination is proper since Kukin '503 teaches that an organometallic manganese compound can be used to reduce carbon but is preferred not to do so only because it is more expensive. Both Kukin '503 and Kukin '920 may be combined because they both teach ~~addint~~ adding a manganese additive to reduce carbon in fly ash. The fact that Kukin '503 teaches an organometallic manganese additive provides further support that the manganese containing substance is not limited to inorganic compounds but is also inclusive of organic compounds (see col.6, lines 65-75 of Kukin '503 and col.4, lines 5-9 of Kukin '820).

Rolfe and Kukin '820:

The applicants argue that Rolfe has no teaching of carbon in fly ash or the reduction of carbon in fly ash as a result of adding the manganese additive. The examiner disagrees on both points. First, it is notoriously known in the art that unburnt carbon is a component of fly ash and Oates '052, Wu '216, Hurt '089, Itoh et al. '561, or Zacarias et al. '585 B2 all prove that it is indisputable that carbon is present in fly ash. Applicants are respectfully requested to acknowledge that this is an indisputable fact (carbon is most certainly present in fly ash) in their next response to address this assertion on page 11 of their response. It is well understood in the art of the cement industry that the residual carbon in fly ash must be removed in order to manufacture a viable cement product (See for example Oates et al. '052 teaching that "carbon is a detrimental contaminant in cement"-col.1, line 49). This should satisfy applicants'

comments that there is no teaching of carbon in fly ash because it is without any doubt that there is carbon present in fly ash.

Rolfe teaches combustion of fuels including fuel oil, gasoline, and coal (col.2, line 24) and that the manganese amine complex additives of his invention reduces the emission of smoke, nitrogen oxides, unburnt hydrocarbons (ie soot), and carbon particles. If it is notoriously known that fly ash (a coal combustion product) contains carbon as Oates '052, Wu '216, Hurt '089, Itoh et al. '561, or Zacarias et al. '585 B2 makes clear, then most certainly the carbon content in fly ash would also be reduced. Note that Rolfe teaches fly ash, smoke, and unburned fuel (such as soot) are examples of noxious pollutants of his invention (col.2, lines 15-17). Fly ash is a noxious pollutant that contains carbon and that amount of carbon in fly ash would be thus reduced by adding this manganese additive.

The applicants finally argue particle size once more yet applicants do not claim particle size for their own manganese additive. It is improper to argue limitations that applicants themselves are not claiming.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Marcantoni whose telephone number is 571-272-1373. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Paul Marcantoni
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Art Unit 1755